

What is claimed is:

1. A network system for providing a network service, comprising:

a standby group of ATM network devices within an ATM network, each ATM network device within the standby group having its own ATM address and sharing a non-ATM network address with other members of the standby group; and

a server which is configured to

determine that a first member of the standby group of network devices is not available to provide the network service; and

identify a second member of the standby group of network devices to provide the network service,

wherein the determination by the server is performed based on at least one of (i) detecting that the first member has not opened a virtual circuit within a predetermined period, and (ii) detecting that the first member has not sent a KEEP ALIVE message within a predetermined period.

2. The network system of claim 1 wherein a first member of the group of ATM network devices is configured to actively service a collection of network destinations without assistance from the remainder of the network ATM devices in the group of ATM network devices.

3. The network system of claim 1 wherein the server is an ATM server in the ATM network.

4. The network system of claim 3 wherein the ATM server can form virtual connections with each member of the standby group.

5. The network system of claim 4 wherein the ATM server can form virtual connections with each member of the standby group using an ARP protocol.

6. The network system of claim 1 wherein the non-ATM address being shared is unique to the group of network devices.

7. The network system of claim 6 wherein the non-ATM address being shared is an IP address.

8. The network system of claim 1 wherein the server is configured to detect that the first member is not active.

9. The network system claim 1 wherein the availability of each of the network devices in the group of network devices is stored in a single entity.

10. The network system of claim 1 wherein each of the network devices in the standby group of network devices has a priority ranking it with respect to the remaining network devices in the group of network devices.

11. The network system of claim 1, wherein the server is configured to determine that the second member has the highest priority of the remaining members of the standby group.

12. The network system of claim 11, wherein the server is configured to determine that the second member has the highest priority prior to identifying the second member of the standby group of network devices to provide the network service.

13. The network system of claim 1, wherein the server is configured to use a list specifying members of the standby group and relative priorities of those members.

14. The network system of claim 1, wherein the server is configured to provide ARP replies identifying the ATM address of the second member of the standby group after identifying the second member.

15. A network system for providing a network service using a first network device, comprising:

a standby group of ATM network devices within an ATM network, each ATM network device within the standby group having its own ATM address and sharing a non-ATM network address with other members of the standby group; and

a server which is configured to

determine that the first network device is available by at least one of (i) detecting that the first network device has opened a virtual circuit within a predetermined period, and (ii) detecting that the first network device has sent a KEEP ALIVE message within a predetermined period;

send a notification identifying the first network device by ATM address and the shared non-ATM network address; and

receive one or more packets destined for the shared non-ATM network address.

16. The network system of claim 15, wherein the notification also specifies a priority of the first network device within the standby group.

17. The network system of claim 15, wherein the server is configured to send an ATMARF request.

18. The network system of claim 15, wherein the first network device exists in a standby state prior to receiving the one or more packets destined for the shared non-ATM network address, and wherein while in the standby state, the first network device does not receive packets destined for the shared non-ATM network address.

19. The network system of claim 15, wherein the shared non-ATM network address is a standby group IP address and the one or more packets destined for the standby group IP address.

20. An ATM network comprising:

a network device in the ATM network having at least one non-ATM network address; and

a server which is configured to

assign the network device to a first group of network devices having a first non-ATM network address; and

promote the network device from a standby status to an active status in which the network device services the non-ATM network address,

wherein the server is configured to promote the network device in response to at least one of (i) detecting that another network device in the first group of network devices has not opened a virtual circuit within a predetermined period, and (ii) detecting that another network device in the first group of network devices has not sent a KEEP ALIVE message within a predetermined period.

21. The ATM network of claim 20, wherein the server is configured to assign the network device to a second group of network devices having a second non-ATM network address which is different from the first non-ATM network address.

22. The ATM network of claim 21, wherein the server is configured to promote the network device from the standby status to the active status based on a priority designation of the network device relative to priority designations of other network devices within the first group of network devices.

23. An ATM network comprising:

a network device in the ATM network, the network device having at least one non-ATM network address; and

a server which is configured to

assign the network device to a group of network devices having a shared non-ATM network address;

determine whether the network device is not available by at least one of (i) determining whether the network device has not opened a virtual circuit within a predetermined period, and (ii) determining whether the network device has not sent a KEEP ALIVE message within a predetermined period; and

if the network device is not available, change the network device from an active status in which the network device services the non-ATM network address to a standby status in which the network device does not service the non-ATM network address.

24. An ATM network comprising:

a plurality of network devices, and

a server including:

one or more processors; and

at least one interface for establishing a connection between the server and a network device of the plurality of network devices,

wherein the one or more processors are configured to provide a collection of entries wherein each entry in the collection of entries corresponds to a network device of the plurality of network devices, wherein one or more of the entries includes the corresponding network device's ATM address, a shared non-ATM address used by the corresponding network device and one or more others of the plurality of network devices, and a value used in determining whether the

network device corresponding to the entry is currently acting as the device having the non-ATM address, and

wherein the one or more processors are configured to adjust the value when it is determined that the network device currently acting as the device having the non-ATM address is no longer available as determined by at least one of (i) detecting that the network device has not opened a virtual circuit within a predetermined period, and (ii) detecting that the network device has not sent a KEEP ALIVE message within a predetermined period.

25. The ATM network of claim 24, wherein the processor is configured to run an ATMARF protocol.

26. The ATM network of claim 24, wherein the at least one interface is an ATM interface.

27. The ATM network of claim 24, wherein the connection is an ATM virtual circuit connection.

28. The ATM network of claim 24 wherein the shared non-ATM address for a first entry in the collection of entries is the same as the shared non-ATM address for a second entry in the collection of entries.

29. The ATM network of claim 28 wherein the value for the first entry in the collection of entries is compared with the value for the second entry in the collection of entries for determining whether the network device corresponding to the entry is currently acting as the device the non-ATM address.

30. The ATM network of claim 24 wherein the collection of entries is stored in non-volatile memory.

31. The ATM network of claim 24, wherein the collections of entries is stored as a logical table.

32. The ATM network of claim 24, wherein the server contains a value used in determining whether the network device is currently acting as the device having the non-ATM address.

33. An ATM network comprising:

a plurality of network devices;

a server; and

a network device including

one or more processors;

at least one interface for establishing a connection between the network device and a second network device;

an ATM address; and

a non-ATM address shared by at least one other network device in the plurality of network devices of the ATM network,

wherein the one or more processors is configured to perform at least one of the following functions: (i) to open a virtual circuit within a predetermined period, and (ii) to send a KEEP ALIVE message within a predetermined period.

34. The ATM network of claim 33 further including a second non-ATM address.

35. The ATM network of claim 34 wherein the second non-ATM address is shared with at least one other network device in the plurality of network devices of the ATM network.

36. The ATM network of claim 33 wherein the at least one interface includes a plurality of sub-interfaces.

37. The ATM network of claim 33 wherein the connection is a virtual connection.

38. The ATM network of claim 37 wherein the virtual connection is an SVC.

39. The ATM network of claim 33 wherein the processor is configured to run as act as an ATMARP Client.

40. The ATM network of claim 33 wherein the network device is a router or switch.

41. The ATM network of claim 33 further including a second ATM address.

42. A network system for providing a network service, comprising:

a plurality of means within an ATM network, each means within the standby group having its own ATM address and sharing a non-ATM network address with other members of the standby group;

means for determining that a first member of the standby group of network devices is not available to provide the network service; and

means for identifying a second member of the standby group of network devices to provide the network service,

wherein determining that the first member of the standby group of network devices is not available comprises at least one of (i) detecting that the first member has not opened a virtual circuit within a predetermined period, and (ii) detecting that the first member has not sent a KEEP ALIVE message within a predetermined period.